

### REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Claims 17-300 are pending in the application.

Supporting basis for new claim 300 can be found in the present application. No new matter has been added.

In view of Applicant's filing this RCE application, the finality of the July 20, 2001 Office Action, and Applicant's appeal from that Final Office Action, should be withdrawn so that the following submissions can be fully considered:

- (1) Response and extensive experimental evidence submitted on January 22, 2002;
- (2) new extensive experimental evidence as described below and Rule 132 Declaration certifying that evidence;
- (3) Information Disclosure Statement; and
- (4) new claim 300.

This RCE application is necessitated by the PTO's continuing failure to properly consider the extensive scientific evidence of record proving the existence of lower-energy hydrogen, i.e., "hydrinos," underlying his claimed invention. This failure resulted in the entry of a premature Final Rejection in this case.<sup>1</sup>

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<sup>1</sup> Applicant timely filed Petitions to withdraw the premature finality of Office Actions filed in many of his copending applications, including the present July 20 Office Action. Applicant's Petitions exposed the premature finality, which introduced new substantive grounds of rejection that were neither necessitated by amendment of the claims, nor based on information submitted in an information disclosure statement. [See Request for Withdrawal of Finality of Office Action mailed September 10, 2001]. In denying Applicant's Petition, the PTO improperly ignored Applicant's compelling reasons for removing the finality of the Office Action—just like it ignored Applicant's experimental evidence. Suspecting the PTO would not admit its procedural error, Applicant filed a Request for Reconsideration of Decision on Petition in only his co-pending Application Serial No. 09/009,294 (the '294 application). The PTO confirmed that suspicion in denying the Request for Reconsideration and again refusing to even consider the

Submitted with this RCE is new scientific evidence demonstrating the existence of lower energy states of hydrogen in many different ways, including but not limited to, spectroscopic lines, energy output, compositions of matter, generated plasmas, and lasers. This experimental evidence cannot be dismissed as being cumulative of earlier submitted experimental evidence.

Applicant respectfully demands that the PTO consider and evaluate in detail this and all other evidence of record so far ignored and, to the extent that it finds fault with any of the scientific data, that those findings be communicated to provide Applicant an opportunity to respond.

Applicant also files herewith a Rule 132 Declaration certifying the newly submitted experimental evidence, which further rebuts the Secret Committee's unjustified utility and enablement rejections of the claimed invention. This evidence, which appears in 25 articles submitted to various scientific journals for publication, conclusively confirms the formation of lower-energy hydrogen through practice of Applicant's novel hydrogen chemistry.

With this latest submission, Applicant now has 70 articles and books of record in this case, as reflected in the "List of References" set forth below. The first 25 articles on this list, numbered 1-25, are the newly submitted articles to which Applicant just referred. Article numbers 26-41 were submitted after the Final Office Action was

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grounds on which Applicant's Petition was based. Applicant then filed a Second Request for Reconsideration on June 11, 2002, pointing out numerous factual errors underlying the PTO's arbitrary and capricious actions. That Request was also denied, this time based on an additional erroneous finding that the Examiner of record did consider Applicant's experimental evidence. This finding, which was manufactured at the "eleventh hour," is not supported by the administrative record and was used as yet another excuse to ignore the grounds upon which Applicant based his Petition. Applicant is therefore preparing a Petition under 37 C.F.R. § 181(a)(3) invoking the supervisory authority of the Commissioner to reverse the denial of the Petition to withdraw the finality of the '294 Office Action, as well as the similar improper final rejections entered in Applicant's copending applications.

mailed and have not yet been fully considered. The articles and books numbered 26-70 were already made of record in previous submissions, but are being referred to in this paper using new numbers as set forth below.

These articles detail studies that experimentally confirm a novel reaction of atomic hydrogen that produces hydrogen in fractional quantum states that are at lower energies than the traditional "ground" ( $n = 1$ ) state, a chemically generated or assisted plasma (rt-plasma), and novel hydride compounds, which studies include:

- extreme ultraviolet (EUV) spectroscopy;<sup>2</sup>
- characteristic emission from catalysis and the hydride ion products;<sup>3</sup>
- lower-energy hydrogen emission;<sup>4</sup>
- plasma formation;<sup>5</sup>
- Balmer  $\alpha$  line broadening;<sup>6</sup>
- population inversion of hydrogen lines;<sup>7</sup>
- elevated electron temperature;<sup>8</sup>
- anomalous plasma afterglow duration;<sup>9</sup>

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<sup>2</sup> Reference numbers 2-5, 7, 15-17, 19-21, 24, 25, 34-40, 42-44, 47, 51, 55-57, 59, and 60. A complete list of reference numbers and corresponding article titles is provided in Attachment A.

<sup>3</sup> Reference numbers 4, 5, 7, 11, 13, 15, 17, 19, 20, 29, 32, 33, 39, 44, 47, and 55.

<sup>4</sup> Reference numbers 3, 7, 16, 21, 35-38, 42, and 43.

<sup>5</sup> Reference numbers 13, 15, 17, 19, 20, 24, 25, 29, 32, 39, 44, 47, 51, 55, 56, and 58-60.

<sup>6</sup> Reference numbers 1-7, 11, 13, 15-17, 19, 20, 22, 25, 28, 29, 32, 34-38, 41, 51, and 55.

<sup>7</sup> Reference numbers 2, 4, 5, 11, 15, and 20.

<sup>8</sup> Reference numbers 3, 6, 7, 11, 16, 22, 28, and 34-37.

<sup>9</sup> Reference numbers 24, 58, and 59.

power generation;<sup>10</sup> and  
analysis of chemical compounds.<sup>11</sup>

More specifically, these exemplary studies include:

1.) the observation of intense extreme ultraviolet (EUV) emission at low temperatures (e.g.  $\approx 10^3$  K) from atomic hydrogen and only those atomized elements or gaseous ions which provide a net enthalpy of reaction of approximately  $m \cdot 27.2$  eV via the ionization of  $t$  electrons to a continuum energy level where  $t$  and  $m$  are each an integer (e.g. K, Cs, and Sr atoms and Rb<sup>+</sup> ion ionize at integer multiples of the potential energy of atomic hydrogen and caused emission; whereas, the chemically similar atoms, Na, Mg, and Ba, do not ionize at integer multiples of the potential energy of atomic hydrogen and caused no emission) [See reference numbers 13, 15, 17, 19, 20, 24, 25, 29, 32, 39, 44, 47, 51, 55, 56, and 58-60];

2.) the observation of novel EUV emission lines from microwave and glow discharges of helium with 2% hydrogen with energies of  $q \cdot 13.6$  eV where  $q = 1, 2, 3, 4, 6, 7, 8, 9, 11, 12$  or these lines inelastically scattered by helium atoms in the excitation of He ( $1s^2$ ) to He ( $1s^1 2p^1$ ) that were identified as hydrogen transitions to electronic energy levels below the "ground" state corresponding to fractional quantum numbers [See reference numbers 3, 7, 16, 21, 35-38, and 43];

3.) the observation of novel EUV emission lines from microwave and glow discharges of helium with 2% hydrogen at 44.2 nm and 40.5 nm with energies of

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<sup>10</sup> Reference numbers 2, 7, 16, 21, 28, 32, 36-38, 40, 41, 46, 48, 60, and 67-69.

<sup>11</sup> Reference numbers 1, 6, 8-10, 26, 27, 30, 33, 46, 52, and 61-65.

$q \cdot 13.6 + \left( \frac{1}{n_f^2} - \frac{1}{n_i^2} \right) \times 13.6 \text{ eV}$  where  $q = 2$  and  $n_f = 2, 4$   $n_i = \infty$  that corresponded to

multipole coupling to give two photon emission from a continuum excited state atom and an atom undergoing fractional Rydberg state transition [See reference number 35];

4.) the identification of transitions of atomic hydrogen to lower energy levels corresponding to lower-energy hydrogen atoms in the extreme ultraviolet emission spectrum from interstellar medium and the sun [See reference numbers 42, 43, 54, 66, and 70];

5.) the EUV spectroscopic observation of lines by the Institut für Niedertemperatur-Plasmaphysik e.V. that could be assigned to transitions of atomic hydrogen to lower energy levels corresponding to fractional principal quantum numbers and the emission from the excitation of the corresponding hydride ions [See reference number 57];

6.) the recent analysis of mobility and spectroscopy data of individual electrons in liquid helium which shows direct experimental confirmation that electrons may have fractional principal quantum energy levels [See reference numbers 18 and 54];

7.) the observation of novel EUV emission lines from microwave discharges of argon or helium with 10% hydrogen that matched those predicted for vibrational transitions of  $H_2^+[n = 1/4; n^* = 2]^+$  with energies of  $\nu \cdot 1.185 \text{ eV}$ ,  $\nu = 17 \text{ to } 38$  that terminated at the predicted dissociation limit,  $E_D$ , of  $H_2[n = 1/4]^+$ ,  $E_D = 42.88 \text{ eV}$  (28.92 nm) [See reference number 42];

8.) the observation of that EUV plasma emission spectra in the region 60 *nm* to 100 *nm* matched the predicted emission lines  $E_{D_{H_2}}$  due to the reaction  $2H(1/2) \rightarrow H_2(1/2)$  with vibronic coupling at energies of  $E_{D+vib} = 17.913 \pm \left(\frac{\nu^*}{3}\right) 0.515902 \text{ eV}$  to longer wavelengths for  $\nu^* = 2$  to  $\nu^* = 32$  and to shorter wavelengths for  $\nu^* = 1$  to  $\nu^* = 16$  to within the spectrometer resolution of about  $\pm 0.05\%$  [See reference number 21];

9.) the observation of continuum state emission of  $Cs^{2+}$  and  $Ar^{2+}$  at 53.3 *nm* and 45.6 *nm*, respectively, with the absence of the other corresponding Rydberg series of lines from these species which confirmed the resonant nonradiative energy transfer of 27.2 *eV* from atomic hydrogen to the catalysts atomic *Cs* or  $Ar^+$  [See reference numbers 15, 20, and 47];

10.) the spectroscopic observation of the predicted hydride ion  $H^-(1/2)$  of hydrogen catalysis by either *Cs* atom or  $Ar^+$  catalyst at 407 *nm* corresponding to its predicted binding energy of 3.05 *eV* [See reference number 47];

11.) the observation of characteristic emission from  $K^{3+}$  which confirmed the resonant nonradiative energy transfer of  $3 \cdot 27.2 \text{ eV}$  from atomic hydrogen to atomic *K* [See reference number 44];

12.) the spectroscopic observation of the predicted  $H^-(1/4)$  ion of hydrogen catalysis by *K* catalyst at 110 *nm* corresponding to its predicted binding energy of 11.2 *eV* [See reference numbers 13, 29, and 44];

13.) the observation of characteristic emission from  $Rb^{2+}$  which confirmed the resonant nonradiative energy transfer of  $27.2\text{ eV}$  from atomic hydrogen to  $Rb^+$  [See reference numbers 15, 17, 20, and 39];

14.) the spectroscopic observation of the predicted  $H^-(1/2)$  ion of hydrogen catalysis by  $Rb^+$  catalyst at  $407\text{ nm}$  corresponding to its predicted binding energy of  $3.05\text{ eV}$  [See reference number 39];

15.) the high resolution visible spectroscopic observation from rt-plasmas and plasma electrolysis cells of the predicted  $H^-(1/2)$  ion of hydrogen catalysis by each of  $K^+ / K^+$ ,  $Rb^+$ ,  $Cs$ , and  $Ar^+$  at  $407\text{ nm}$  corresponding to its predicted binding energy of  $3.05\text{ eV}$  [See reference numbers 25, 29, 32, 33, 39, 44, and 47];

16.) the observation of  $H^-(1/2)$ , the hydride ion catalyst product of  $K^+ / K^+$  or  $Rb^+$ , by high resolution visible spectroscopy as a broad peak at  $407\text{ nm}$  with a FWHM of  $0.14\text{ nm}$  corresponding to its predicted binding energy of  $3.0468\text{ eV}$  [See reference numbers 13, 25, and 29];

17.) the observation of  $H^-(1/2)$  at its predicted binding energy of  $3.0468\text{ eV}$  by high resolution visible spectroscopy as a continuum threshold at  $4068.2\text{ \AA}$  and a structured, strong emission peak at  $4071\text{ \AA}$  corresponding to the fine structure and hyperfine structure of  $H(1/2)$  [See reference numbers 13, 25, and 29];

18.) the observation that the high resolution visible plasma emission spectra in the region of  $499.5\text{ nm}$  to  $406.0\text{ nm}$  matched the predicted bound-free hyperfine structure lines  $E_{HF}$  of  $H^-(1/2)$  calculated from the electron  $g$  factor as

$E_{HF} = j^2 3.00213 \times 10^{-5} + 3.0563 \text{ eV}$  ( $j$  is an integer) for  $j = 1$  to  $j = 39$  to within a 1 part per  $10^5$  [See reference numbers 13, 25, and 29];

19.)  $Rb^+$  or  $2K^+$  catalysts formed a plasma having strong VUV emission with a stationary inverted Lyman population with an overpopulation sufficient for lasing, and emission from  $H^-(1/2)$  was observed at 4071 Å corresponding to its predicted binding energy of 3.0468 eV with the fine structure and its predicted bound-free hyperfine structure lines  $E_{HF} = j^2 3.00213 \times 10^{-5} + 3.0563 \text{ eV}$  ( $j$  is an integer) that matched for  $j = 1$  to  $j = 37$  to within a 1 part per  $10^5$  [See reference numbers 13, 15, 17, 20, and 25];

20.) the observation of stationary inverted H Balmer and Lyman populations from a low pressure water-vapor microwave discharge plasma with an overpopulation sufficient for lasing at wavelengths over a wide range from micron to blue wherein molecular oxygen served as the catalyst as supported by  $O^{2+}$  emission and H Balmer line broadening of 55 eV compared to 1 eV for hydrogen alone [See reference numbers 2, 4, 5, and 11];

21.) the observation that with a microwave input power of  $9 \text{ W} \cdot \text{cm}^{-3}$ , a collisional radiative model showed that the hydrogen excited state population distribution was consistent with an  $n = 1 \rightarrow 5, 6$  pumping power of an unprecedented  $200 \text{ W} \cdot \text{cm}^{-3}$  permissive of gas laser efficiencies orders of magnitude those of conventional visible gas lasers and direct generation of electrical power using photovoltaic conversion of the spontaneous or stimulated water vapor plasma emission [See reference number 2];

22.) the observation by the Institut für Niedertemperatur-Plasmaphysik e.V. of an anomalous plasma and plasma afterglow duration formed with hydrogen-potassium mixtures [See reference numbers 24 and 58];



23.) the observation of anomalous afterglow durations of plasmas formed by catalysts providing a net enthalpy of reaction within thermal energies of  $m \cdot 27.28 \text{ eV}$  [See reference numbers 24, 58, and 59];

24.) the observation of Lyman series in the EUV that represents an energy release about 10 times that of hydrogen combustion which is greater than that of any possible known chemical reaction [See reference numbers 13, 15, 17, 19, 20, 24, 25, 29, 32, 39, 44, 47, 51, 55, 56, and 58-60];

25.) the observation of line emission by the Institut für Niedertemperatur-Plasmaphysik e.V. with a  $4^\circ$  grazing incidence EUV spectrometer that was 100 times more energetic than the combustion of hydrogen [See reference number 57];

26.) the observation of anomalous plasmas formed with  $Sr$  and  $Ar^+$  catalysts at 1% of the theoretical or prior known voltage requirement with a light output per unit power input up to 8600 times that of the control standard light source [See reference numbers 19, 48, 51, 55, and 60];

27.) the observation that the optically measured output power of gas cells for power supplied to the glow discharge increased by over two orders of magnitude depending on the presence of less than 1% partial pressure of certain catalysts in hydrogen gas or argon-hydrogen gas mixtures, and an excess thermal balance of 42 W was measured for the 97% argon and 3% hydrogen mixture versus argon plasma alone [See reference number 48];

28.) the observation that glow discharge plasmas of the catalyst-hydrogen mixtures of strontium-hydrogen, helium-hydrogen, argon-hydrogen, strontium-helium-

hydrogen, and strontium-argon-hydrogen showed significant Balmer  $\alpha$  line broadening corresponding to an average hydrogen atom temperature of 25 - 45 eV; whereas, plasmas of the noncatalyst-hydrogen mixtures of pure hydrogen, krypton-hydrogen, xenon-hydrogen, and magnesium-hydrogen showed no excessive broadening corresponding to an average hydrogen atom temperature of  $\approx 3$  eV [See reference numbers 19, 41, 51, and 55];

29.) the observation of characteristic emission from  $Sr^{3+}$  which confirmed the resonant nonradiative energy transfer of  $2 \cdot 27.2$  eV from atomic hydrogen to  $Sr^+$  [See reference number 19 and 55];

30.) the observation that microwave helium-hydrogen and argon-hydrogen plasmas having catalyst  $Ar^+$  or  $He^+$  showed extraordinary Balmer  $\alpha$  line broadening due to hydrogen catalysis corresponding to an average hydrogen atom temperature of 110 - 130 eV and 180 - 210 eV, respectively; whereas, plasmas of pure hydrogen, neon-hydrogen, krypton-hydrogen, and xenon-hydrogen showed no excessive broadening corresponding to an average hydrogen atom temperature of  $\approx 3$  eV [See reference numbers 1, 3, 6, 7, 16, 22, 28, and 34-36];

31.) the observation that microwave helium-hydrogen and argon-hydrogen plasmas showed average electron temperatures that were high, 28,000 K and 11,600 K, respectively; whereas, the corresponding temperatures of helium and argon alone were only 6800 K and 4800 K, respectively [See reference numbers 3, 6, 7, 16, 22, 34, and 35-37];

32.) the observation of significant Balmer  $\alpha$  line broadening of 17, 9, 11, 14, and 24 eV from rt-plasmas of incandescently heated hydrogen with  $K^+ / K^+$ ,  $Rb^+$ , cesium, strontium, and strontium with  $Ar^+$  catalysts, respectively, wherein

the results could not be explained by Stark or thermal broadening or electric field acceleration of charged species since the measured field of the incandescent heater was extremely weak, 1 V/cm, corresponding to a broadening of much less than 1 eV [See reference numbers 13, 15, 17, 19, 20, 25, and 32];

33.) calorimetric measurement of excess power of 20 mW/cc on rt-plasmas formed by heating hydrogen with  $K^+ / K^+$  and  $Ar^+$  as catalysts [See reference number 32];

34.) the Calvet calorimetry measurement of an energy balance of over  $-151,000 \text{ kJ/mole } H_2$  with the addition of 3% hydrogen to a plasma of argon having the catalyst  $Ar^+$  compared to the enthalpy of combustion of hydrogen of  $-241.8 \text{ kJ/mole } H_2$ ; whereas, under identical conditions no change in the Calvet voltage was observed when hydrogen was added to a plasma of noncatalyst xenon [See reference number 40];

35.) the observation that the power output exceeded the power supplied to hydrogen glow discharge plasmas by 35-184 W depending on the presence of catalysts from helium or argon and less than 1% partial pressure of strontium metal in noble gas-hydrogen mixtures; whereas, the chemically similar noncatalyst krypton had no effect on the power balance [See reference number 41];

36.) the observation that with the addition of 3% flowing hydrogen to an argon microwave plasma with an constant input power of 40 W, the gas temperature increased from 400°C to over 750°C; whereas, the 400°C temperature of a xenon plasma run under identical conditions was essentially unchanged with the addition of hydrogen [See reference number 28];

37.) the observation that with an input of 22 W, the total plasma power of the helium-hydrogen plasma measured by Calvet calorimetry was 60 W corresponding to 38 W of excess power in  $0.32 \text{ cm}^3$  [See reference number 16];

38.) the observation that upon the addition of 10% hydrogen to a helium microwave plasma maintained with a constant microwave input power of 40 W, the thermal output power was measured to be at least 280 W corresponding to a reactor temperature rise from room temperature to 1200 °C within 150 seconds, a power density of  $28 \text{ MW/m}^3$ , and an energy balance of at least  $-4 \times 10^5 \text{ kJ/mole H}_2$  compared to the enthalpy of combustion of hydrogen of  $-241.8 \text{ kJ/mole H}_2$  [See reference number 36];

39.) the observation of  $306 \pm 5 \text{ W}$  of excess power generated in  $45 \text{ cm}^3$  by a compound-hollow-cathode-glow discharge of a neon-hydrogen (99.5/0.5%) mixture corresponding to a power density of  $6.8 \text{ MW/m}^3$  and an energy balance of at least  $-1 \times 10^6 \text{ kJ/mole H}_2$  compared to the enthalpy of combustion of hydrogen of  $-241.8 \text{ kJ/mole H}_2$  [See reference number 21];

40.) the observation of intense  $\text{He}^+$  emission and a total plasma power of a helium-hydrogen plasma measured by water bath calorimetry of 30.0 W for an input of 8.1 W, corresponding to 21.9 W of excess power in  $3 \text{ cm}^3$  wherein the excess power density and energy balance were high,  $7.3 \text{ W/cm}^3$  and  $-2.9 \times 10^4 \text{ kJ/mole H}_2$ , respectively [See reference number 7];

41.) at the load matching condition of  $600 \Omega$ , the direct plasmadynamic conversion (PDC) of open circuit voltages of 11.5 V and ~200 mW of electrical power with a 0.125 in diameter by 3/4 in long plasmadynamic electrode and a 140 G applied

field corresponding to an extracted power density of  $\sim 1.61 \text{ W/cm}^3$  and an efficiency of  $\sim 18.8\%$  [See reference number 23];

42.) at the load matching condition of  $250 \Omega$ , the direct plasmadynamic conversion (PDC) of open circuit voltages of 21.8 V and 1.87 W of electrical power with a 0.125 in diameter by 3/4 in long plasmadynamic electrode and a 140 G applied field corresponding to an extracted power density of  $3.6 \text{ W/cm}^3$  and an efficiency of 42% [See reference number 14];

43.) the projection that the generation of electricity using magnetohydrodynamic (MHD) conversion of the plasma particle energy of small to mid-size chemically assisted microwave or glow discharge plasma (ca-plasma) power sources in the range of a few hundred Watts to several 10's of kW for microdistributed commercial applications appears feasible at 50% efficiency or better with a simple compact design [See reference number 31];

44.) the differential scanning calorimetry (DSC) measurement of minimum heats of formation of  $KHI$  by the catalytic reaction of  $K$  with atomic hydrogen and  $KI$  that were over  $-2000 \text{ kJ/mole } H_2$  compared to the enthalpy of combustion of hydrogen of  $-241.8 \text{ kJ/mole } H_2$  [See reference number 46];

45.) the isolation of novel hydrogen compounds as products of the reaction of atomic hydrogen with atoms and ions which formed an anomalous plasma as reported in the EUV studies [See reference numbers 1, 8, 9, 26, 27, 33, 46, 52, and 61-65];

46.) the synthesis and identification of a novel diamond-like carbon film terminated with  $CH(1/p)$  ( $H^* DLC$ ) comprising high binding energy hydride ions was

synthesized for the first time from solid carbon by a microwave plasma reaction of a mixture of 10-30% hydrogen and 90-70% helium wherein  $He^+$  served as a catalyst with atomic hydrogen to form the highly stable hydride ions [See reference number 10];

47.) the synthesis of single crystal diamond films on silicon substrates without diamond seeding by a microwave plasma reaction of a mixture of 10-30% hydrogen, 90-70% helium, and 1-10%  $CH_4$  wherein  $He^+$  served as a catalyst with atomic hydrogen to form an energetic plasma with an average hydrogen atom temperature of 180 - 210 eV versus  $\approx 3$  eV for pure hydrogen and bombardment of the carbon surface by highly energetic hydrogen formed by the catalysis reaction may play a role in the formation of diamond [See reference numbers 1 and 6];

48.) the identification of a novel highly stable surface coating  $SiH(1/p)$  by time of flight secondary ion mass spectroscopy that showed  $SiH^+$  in the positive spectrum and  $H^-$  dominant in the negative spectrum and by X-ray photoelectron spectroscopy which showed that the  $H$  content of the  $SiH$  coatings was hydride ions,  $H^-(1/4)$ ,  $H^-(1/9)$ , and  $H^-(1/11)$  corresponding to peaks at 11, 43, and 55 eV, respectively, and showed that the surface was remarkably stable to air [See reference numbers 9 and 26];

49.) the isolation of novel inorganic hydride compounds such as  $KHKHCO_3$  and  $KH$  following each of the electrolysis and plasma electrolysis of a  $K_2CO_3$  electrolyte which comprised high binding energy hydride ions that were stable in water with their identification by methods such as (i) ToF-SIMS on  $KHKHCO_3$  which showed inorganic hydride clusters  $K[KHKHCO_3]^+$  and a negative ToF-SIMS dominated by hydride ion, (ii) X-ray photoelectron spectroscopy which showed novel peaks corresponding to high binding energy hydride ions, and (iii) proton nuclear magnetic resonance spectroscopy

which showed upfield shifted peaks corresponding to more diamagnetic, high-binding-energy hydride ions [See reference numbers 30, 33, 62, 64, and 65];

50.) the identification of  $LiHCl$  comprising a high binding energy hydride ion by time of flight secondary ion mass spectroscopy which showed a dominant  $H^-$  in the negative ion spectrum, X-ray photoelectron spectroscopy which showed  $H^-(1/4)$  as a new peak at its predicted binding energy of 11 eV,  $^1H$  nuclear magnetic resonance spectroscopy which showed an extraordinary upfield shifted peak of 15.4 ppm corresponding to the novel hydride ion, and powder X-ray diffraction which showed novel peaks [See reference numbers 8 and 27];

51.) the identification of novel hydride compounds by a number of analytic methods as such as (i) time of flight secondary ion mass spectroscopy which showed a dominant hydride ion in the negative ion spectrum, (ii) X-ray photoelectron spectroscopy which showed novel hydride peaks and significant shifts of the core levels of the primary elements bound to the novel hydride ions, (iii)  $^1H$  nuclear magnetic resonance spectroscopy (NMR) which showed extraordinary upfield chemical shifts compared to the NMR of the corresponding ordinary hydrides, and (iv) thermal decomposition with analysis by gas chromatography, and mass spectroscopy which identified the compounds as hydrides [See reference numbers 8, 9, 26, 27, 30, 33, 46, 52, and 61-65];

52.) the NMR identification of novel hydride compounds  $MH^*X$  wherein  $M$  is the alkali or alkaline earth metal,  $X$ , is a halide, and  $H^*$  comprises a novel high binding energy hydride ion identified by a large distinct upfield resonance [See reference numbers 27, 46, 52, 61, and 63];

53.) the replication of the NMR results of the identification of novel hydride compounds by large distinct upfield resonances at Spectral Data Services, University of Massachusetts Amherst, University of Delaware, Grace Davison, and National Research Council of Canada [See reference number 52]; and

54.) the NMR identification of novel hydride compounds  $MH^*$  and  $MH_2^*$  wherein  $M$  is the alkali or alkaline earth metal and  $H^*$  comprises a novel high binding energy hydride ion identified by a large distinct upfield resonance that proves the hydride ion is different from the hydride ion of the corresponding known compound of the same composition [See reference number 52].

Applicant again respectfully demands that the Secret Committee consider and evaluate in detail all of this record evidence, which, to date, it has largely ignored.<sup>12</sup> The scientific data disclosed in this extensive body of evidence was collected and peer-reviewed with great care by a group of highly qualified scientists capable of understanding every detail of Applicant's technology. The very least the Committee can do is to also carefully evaluate that data in detail, article by article, keeping an open mind, so that Applicant is given a fair opportunity to present his case. If and when the Secret Committee finally does so, Applicant believes it will find that the evidence

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<sup>12</sup> The Secret Committee, for the first time in its Final Office Action, did address but a small portion of Applicant's experimental evidence, criticizing certain aspects of his calorimetry, NMR and XPS data. In doing so, however, the Committee mischaracterized that evidence, making clear that it failed to thoroughly review the data and therefore misunderstood its significance. See Applicant's Appendix, pages 109, paragraph 19, through page 158, filed on January 16, 2002 for a complete response to the Committee's comments, to which it has yet to reply. The Committee has not addressed the remaining vast body of experimental data discussed above.



overwhelmingly proves the existence of lower-energy hydrogen in accordance with his claimed invention.

If, on the other hand, the Committee should find true fault with any of that data on legitimate scientific grounds—not the kind of nitpicking Applicant has seen on theoretical grounds—it should communicate as much to afford Applicant the opportunity to respond. Such scientific give-and-take is the only way to advance the prosecution of this case.

Unfortunately, with continued prosecution of this and BlackLight's other applications, a far different pattern has emerged. The Secret Committee continues to set arbitrary and capricious hurdles designed to avoid considering Applicant's conclusive experimental evidence and thereby block his patents from issuing. Each time Applicant clears one of these hurdles, the Committee merely raises the bar.

For instance, the Secret Committee initially alleged that Applicant's disclosed hydrogen chemistry, which forms lower-energy hydrogen, related to the controversial concepts of "perpetual motion" and "cold fusion." When Applicant exposed those allegations as utter nonsense, the Committee quickly abandoned its indefensible position, arguing instead that BlackLight's lower-energy hydrogen technology violated unidentified laws of physics. Then, to cover up its failure to identify even a single physical law that was supposedly being violated, the Committee improperly placed the burden on Applicant to do so: "in order to establish enablement, applicant bears the burden of providing the accepted scientific laws wrong or incomplete." When Applicant showed just the opposite is true—that Applicant's novel hydrogen chemistry complies with all physical laws, even at atomic and sub-atomic levels—the Secret Committee once again backpedaled and changed its position. The Committee then advanced vague assertions that Applicant's lower-energy hydrogen violated "ideas" of modern science and, later, that it contradicted "beliefs" in the scientific community.

The only consistency found throughout these myriad of absurd positions is the Secret Committee's use of each to excuse it from fairly considering and evaluating

Applicant's scientific evidence that lower-energy hydrogen does indeed exist. Instead, the Committee prefers engaging in a theoretical debate to the exclusion of that evidence, pitting its favored quantum theory, with all of its far-fetched and disproved predictions, against Applicant's theory of classical quantum mechanics that correctly predicts the formation of lower-energy hydrogen.

Applicant has willingly engaged the Secret Committee in this debate, and will continue to do so if necessary, even though the patent laws do not require that he understand the precise theoretical basis for why his invention works. All the law requires is that he disclose his invention in sufficient detail to enable one of ordinary skill in the art how to practice it. Applicant has done precisely that and the Committee has failed in its burden to show otherwise.

Of course, the debate over these competing theories can go on indefinitely without resolution, which may be the Secret Committee's strategy. Engaging in that intellectual exercise, however, will not—indeed cannot—definitively settle the question of whether practicing Applicant's disclosed hydrogen chemistry results in the formation of lower-energy hydrogen. Like any good theoretical debate, this one can only be tested and ultimately settled by fairly analyzing the unprecedented amount of experimental evidence Applicant has submitted conclusively confirming the lower energy states of hydrogen.

Applicant has expended tens of millions of dollars amassing this experimental evidence. The least the Secret Committee can do is properly consider it. The Committee's view, however, appears to be that, because the existence of lower-energy hydrogen is theoretically impossible—at least according to its misguided view of quantum mechanics—it need not analyze any contrary evidence. Applicant is hard pressed to imagine an approach to patent examination any more arbitrary and capricious than that.

In the few isolated instances in which the Secret Committee does address Applicant's evidence, it comes up with ridiculous reasons for dismissing it without a fair

hearing, again demonstrating an arbitrary and capricious approach. One prominent example occurred at the February 21, 2001 Interview in this case, during which Applicant met with Examiner Vasudevan Jagannathan—one of the few Secret Committee members Applicant has been able to successfully identify. Applicant had a brief opportunity to present some of his scientific evidence, which included spectroscopic data that is extraordinarily reliable in analyzing chemical compositions. Such data amounts to a “chemical fingerprint” that cannot be seriously disputed. Despite the conclusiveness of that evidence, Examiner Jagannathan dismissed it out of hand as nothing more than “a bunch of squiggly lines.”

To put the absurdity of that comment in context, after the PTO implemented its withdrawal action in other copending BlackLight patent applications, it rationalized its decision, in part, by citing a January 12, 2000 article written by the spokesman for one of Applicant’s main competitors, the American Physical Society (APS). [March 22, 2000 Decision at page 7.] In that article, Dr. Park made the following startling statement:

The energy states of atoms are studied through their atomic spectra—light emitted at very specific wavelengths when electrons make a jump from one energy level to another. The exact prediction of the hydrogen spectrum was one of the first great triumphs of quantum theory; it is the platform on which our entire understanding of atomic physics is built. The theory accounts perfectly for every spectral line.

There is no line corresponding to a “hydrino” state. Indeed there is no credible evidence at all to support Mills’ claim. [See Tab 67 filed with January 3, 2002 Response]

The incredible irony here—one that cannot be easily overlooked—highlights once again the extreme arbitrary and capricious approach the Secret Committee has taken in examining this and other BlackLight applications. There is no question that the vitriol espoused by Dr. Park in his cited *Post* article was, at least, partially responsible for the PTO’s withdrawal action. And yet, despite the fact that the very article the PTO relies upon to deny Applicant his patents recognizes that spectroscopic data is extraordinarily

reliable—indeed, the “platform on which our entire understanding of atomic physics is built”—the Secret Committee nonetheless continues to cavalierly ignore or dismiss that same data when submitted by Applicant.

Out of exasperation, Applicant queried Examiner Jagannathan during the February 21 Interview as to what type and quality of evidence would convince him that lower-energy hydrogen exists. The Examiner indicated that Applicant would have to publish his experimental evidence in peer-reviewed scientific journals before he considered that evidence to be reliable. As detailed above, Applicant has more than met the Secret Committee's new “published” standard for considering experimental evidence by submitting 70 scientific papers for publication, 38 of which so far have been peer-reviewed by highly qualified Ph.D. referees and either published or accepted for publication in well-respected scientific journals.

The esteemed list of journals to which Applicant's experimental evidence has been submitted includes:

- Applied Physics Letters;
- Chemistry of Materials;
- Diamond and Related Materials;
- Foundations of Science;
- Fuels and Energy;
- IEEE Transactions on Plasma Science;
- International Journal of Energy;
- International Journal of Engineering Science;
- Journal of Physical Chemistry A;
- Journal Vacuum Science and Technology;
- Materials Characterization;
- Physica Scripta;
- Physics Review E;
- Spectrochimica Acta B;

Thermochimica Acta; and  
Vibrational Spectroscopy.

Once again, however, the Secret Committee has raised the bar to patentability by arbitrarily and capriciously ignoring this vast body of evidence, apparently believing that its anonymous members are better qualified than the numerous skilled PhD's who peer-reviewed and approved Applicant's articles confirming the existence of lower-energy hydrogen.

The Secret Committee's mishandling of the experimental evidence of record in this case is but one of several improper PTO actions that have adversely effected Applicant's patent rights. Others include:

- Illegally withdrawing or threatening to withdraw other copending BlackLight patent applications from issue, after initially allowing all claims, under highly suspicious circumstances that suggest possible interference by competitors of assignee, BlackLight Power, Inc.;
- Improperly examining this application by Secret Committee, effectively denying Applicant the right to confront the persons involved in that examination and ascertain whether those persons include BlackLight's competitors, or other outside influences, in breach of PTO confidentiality requirements; and
- Refusing reasonable requests by Applicant and five U.S. Senators to divulge information relating to the events that triggered the PTO's withdrawal action, and the identity of all PTO employees and non-PTO personnel involved in examining BlackLight's applications.

The above-listed issues bear directly upon the prosecution of BlackLight's pending applications, yet Applicant's good faith efforts to discuss and resolve these and other outstanding issues have been either ignored or rejected out of hand. Applicant's latest overture was communicated directly to PTO Director James E. Rogan in a letter dated December 21, 2001, from BlackLight board member Dr. Shelby T. Brewer, who received his Ph.D. in Nuclear Engineering from M.I.T. and served as Assistant Energy Secretary in the Reagan administration. [Copy provided in Attachment B]

As stated in his letter, Dr. Brewer's reasons for appealing to Director Rogan were motivated not only by his fiduciary duty to protect BlackLight's best interests, but also by a sincere desire to avoid unnecessary embarrassment to the PTO over these lingering issues if left unresolved. Dr. Brewer appealed for a meeting with Director Rogan in an attempt to bring some closure to this matter in a way that might mutually benefit both sides.

Despite the urgency of his plea, Dr. Brewer waited over four months before finally receiving a response to his request for a meeting. In a curt letter dated April 24, 2002, from the Director's Chief-of-Staff, Jason C. Roe, the PTO advised: "We appreciate your interest in this matter, but, unfortunately, must decline your request for a meeting due to the fact that the USPTO is not in a position to discuss the issue at the present time." [Copy provided in Attachment C]

This negative response, while disappointing, was hardly surprising. In refusing to meet with Applicant, the PTO continues to treat prosecution of this and BlackLight's other copending cases as an adversarial proceeding. While the PTO may believe it is justified in shrouding its untoward actions under a cloak of secrecy and remaining answerable to no one, that approach does little to preserve public confidence in the patent process. Only by openly engaging Applicant in mutually beneficial discussions of all the issues in this case can the PTO ever hope to achieve that worthy goal. Applicant therefore implores Director Rogan to reconsider his decision and adopt a more flexible

and cooperative approach by agreeing to meet with Applicant to discuss the handling of this and other pending BlackLight applications before taking any further action.

Perhaps the PTO sees no need to modify its approach, buoyed by the Federal Circuit's recent June 28, 2002 Decision upholding its withdrawal action in other copending BlackLight patent applications. See *BlackLight Power, Inc. v. Director James E. Rogan*, Appeal No. 00-1530 (Fed. Cir. June 28, 2002) [Copy provided in Attachment D]. The Federal Circuit ruled, among other things, that an "emergency situation" trumped the controlling regulation requiring the PTO to determine the unpatentability of one or more claims before it withdrew the '294 application from issue so that the PTO's mere "concern" over patentability provided adequate basis for the withdrawal. Assuming, however, that the Court's Decision is not overturned,<sup>13</sup> the disposition of the case does not even begin to resolve other underlying issues in this case.

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<sup>13</sup> Applicant believes that the Federal Court's opinion is erroneous due, in part, to its misreading of a concurring opinion in a 38-year-old Supreme Court case to support its holding that this supposed "emergency situation" justified the PTO's withdrawing BlackLight's copending '294 application from issue on February 17, 2000, after payment of the issue fee. See *BlackLight Power* at page 7 citing *Baltimore & Ohio Railroad Co. v. United States*, 386 U.S. 372, 421 (1964) (Brennan, J., concurring) (recognizing the importance of leaving the Interstate Commerce Commission (ICC) great flexibility to deal with emergency situations to avoid serious damage to the national transportation system, but finding no pressing need that justified the ICC's action). The Federal Circuit stretched that case way beyond the limits of Supreme Court precedent requiring government agencies to strictly follow statutory and regulatory guidelines.

Incredibly, at oral argument, the PTO did not even suggest that an emergency situation had forced it to withdraw this application from issue on February 17. To the contrary, PTO Solicitor John M. Whealan argued that no withdrawal—emergency or otherwise—occurred on that date and admitted that, if the Court found otherwise, his case would be seriously compromised. This was because, at that time, the PTO could not locate the patent file and admittedly could not have made a determination of unpatentability of one or more claims as required by the controlling regulation. See 37 C.F.R. § 1.131(b)(3); MPEP § 1308 (7<sup>th</sup> Ed., Rev. 1, Feb. 2000). To avoid an adverse ruling, Solicitor Whealan sought refuge outside the administrative record, suggesting for

One such issue is how this alleged "emergency situation" arose in the first place, *i.e.*, how the PTO became aware of BlackLight's issued U.S. Patent No. 6,024,935 (the '935 patent) that supposedly raised "concerns" about other pending applications. That issue apparently was not important to Associate Solicitor Kevin Baer who defended the PTO's conduct by arguing to the District Court: "I would even say, Your Honor, you could imagine in our head any scenario of how we learned about it. A blimp flying over us. It doesn't matter, because what matters, Your Honor, is the decision [to withdraw] itself." [May 22, 2000 Transcript at 22 (Tab 54 at Tab E, previously submitted)]

Judge Sullivan, however, was apparently unimpressed by those comments, noting in footnote 10 of his opinion that he was "troubled by several steps in the PTO's process" and advising the PTO to "examine its patent issuance process so that their normal operations are not compromised by such seemingly suspicious procedures." [Op. at 25 (Tab 63 filed previously)]

While the PTO may be unconcerned how it learned of the '935 patent, Applicant considers that information critically important. If, for instance, competitors were somehow involved in events leading to the withdrawal of BlackLight's allowed applications and, perhaps, in the subsequent prosecution of those and other applications, that information would relate directly to the credibility of the rejections entered in those cases including this one. Applicant therefore renews his request for a full accounting of how, out of the thousands of patents the PTO issues every week, his

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the first time that the PTO had used the wrong form in mistakenly notifying Applicant on February 17 that his application had been withdrawn. Then, again without evidentiary support, the Solicitor tried to convince a skeptical Court that Director Kepplinger, in consultation with the Examiner, had made an unpatentability determination sometime later, after Applicant had voluntarily supplied the PTO with a copy of the application—hardly an emergency situation if it were true.

In view of the Federal Circuit's erroneous decision, Applicant contemplates filing a petition for certiorari seeking to have the Supreme Court reverse that decision and remedy the PTO's illegal withdrawal action.



'935 patent came to its attention, thus leading to the withdrawal of BlackLight's allowed applications.

Applicant believes that his concerns over outside influences on the prosecution of his applications are fully justified. Following the PTO's withdrawal action, counsel immediately investigated the facts and circumstances surrounding that action by questioning various PTO personnel. In discussions with Director Esther Kepplinger, she admitted to counsel that the withdrawal was a reaction to perceived heat—a "firestorm" as she put it—the PTO had received from an undisclosed outside source. Director Kepplinger further indicated that the withdrawal occurred only after BlackLight's '935 patent had been brought to the attention of then-Director Q. Todd Dickinson by Gregory Aharonian, another PTO outsider well known for publicly attacking issued U.S. patents.

Director Kepplinger's revelations are truly disturbing in that they describe what is, in essence, a newly created non-statutory reexamination procedure for opposing the issuance of patents never envisioned by Congress. *Compare* 35 U.S.C. §§ 301-307 (patent reexamination statutes).

This was but one of several issues Dr. Brewer raised in his letter to Director Rogan as a possible topic for discussion that the PTO says it is "not in a position to discuss . . . at the present time." The PTO's response, however, merely begs the question: if not now, when?

Following the PTO's drastic withdrawal action, Applicant discovered other reliable information suggesting outside interference with BlackLight's patent applications and breaches of the PTO's duty to maintain the confidentiality of those applications. Applicant learned that Dr. Peter Zimmerman, former Chief Scientist for the State Department, had published an Abstract of an upcoming speech to the American Physical Society (APS)—a BlackLight competitor—boasting that his Department and the Patent Office "have fought back with success" against BlackLight. [See previously submitted Tab 54 at Tab C] In conversations with BlackLight's counsel, Dr. Zimmerman admitted that he received information concerning BlackLight's applications through e-

mails from Dr. Robert Park, spokesman for the APS, who told him of a contact in the PTO referred to by Dr. Park as "Deep Throat." [See previously filed Tab 54 at Tab C]

Applicant has disclosed this information to the PTO numerous times over the last year and a half, most recently in Dr. Brewer's letter to Director Rogan, only to receive the same non-response. [See, for example, January 19, 2001 Letter to Director Kepplinger (previously submitted Tab 54)] As Dr. Brewer explained in his letter, BlackLight is obviously concerned, among other things, that the PTO may have breached its duty to maintain confidentiality of U.S. patent applications under 35 U.S.C. § 122, 18 U.S.C. § 2071, 37 C.F.R. § 1.14, and M.P.E.P. § 101. The PTO's short statement that it is "not in a position to discuss the issue at the present time" does little to allay those concerns.

Even more distressing is Applicant's suspicion that patent rights to his novel hydrogen chemistry may have been compromised by a group of physicists with a vested interest in maintaining federal funding for projects based on a competing scientific theory and that those physicists continue to exert influence on the prosecution of BlackLight's pending applications.

The PTO's continued silence on these issues, while relying on the statements of competitors like Dr. Park, with his "Deep Throat" PTO contacts, to undercut Applicant's patent rights, only fuel those suspicions. In its March 22, 2000 Decision, the PTO justified its withdrawal action by relying, in part, on a *Washington Post* article written by Dr. Park only slightly more than a month prior to the withdrawal:

While petitioner in the accompanying letter points to favorable testimonials from scientists and entrepreneurs regarding the “revolutionary technology” that the instant application is asserted to embody, this does not establish that either the Director, Technology Center 1700, or the Director, Special Programs Law Office, committed reversible error, nor that the Notice should be withdrawn. In contrast, mainstream newspapers have reported this same “revolutionary technology” is accompanied by controversy in the scientific community. See Baard et al., Scientists and entrepreneurs have lots of ideas about new sources of energy; some may even be practical, *Wall St. J.*, Sept. 13, 1999, at R16; **Park, Perpetual motion; still going around, *Washington Post*, Jan. 12, 2000, at H3.** [March 22 Decision at 7]

Applicant is naturally skeptical that this timing was simply a coincidence. Regardless, the mere fact that the PTO would rely on any competitor to “bad-mouth” BlackLight’s technology is troubling. That it relied on Dr. Park of all people, known for conducting “hatchet jobs” on new technologies that threaten federal funding for the physicists he represents, is contemptible.

The same *Washington Post* that ran Dr. Park’s libelous article rebuked its less than credible author in a subsequent article confirming his reputation for engaging in what it described a “search-and-destroy mission” against inventors and scientists who seek to advance the bounds of science. [See Article dated June 25, 2000 (Previously filed Tab 68)] To quote the article’s exact words, “Park’s anger permeates his rebuttals, which border on character assassination.” Noting that “thoroughness is not Park’s strong suit,” the article goes on to suggest that his intentions may be less than honorable:

Park’s failure to gather first-hand data is unfortunate, but his selective omissions are far more serious. In at least one case, he violated basic principles of journalism and science itself by apparently suppressing information that conflicts with his foregone conclusion. . . . Such tactics are reminiscent of the behavior of a zealous DA who is so convinced that a suspect is guilty that he feels entitled to withhold some information from the jury.

Dr. Park's competitive motives in attacking BlackLight's novel hydrogen chemistry are clear, as further recognized by the *Post* article in its description of Dr. Park as "a Washington lobbyist and PR flack for the American Physical Society." The article goes on to warn of the serious effects a rush to judgment can have without first-hand review of experimental evidence:

This is a serious matter, since even poorly documented vitriol can jeopardize a scientist's reputation and future funding if it is disseminated with the complicity of a respected organization such as the American Physical Society.

Incredibly, in rationalizing its withdrawal action, the PTO pays tribute to a "hatchet man" like Dr. Park, who never lets scientific evidence interfere with sabotaging a competitor, by citing his hostile statements against BlackLight. Yet, in explaining the issuance of BlackLight's '935 patent, the PTO publicly denigrates its entire examining corps, known for their careful study of experimental evidence in deciding whether to issue U.S. patents:

[P]atent examiners do review [patent applications]. Unfortunately, patent examiners are swamped and sometimes things slip through. [Statement of Associate Solicitor Baer in *BlackLight Power, Inc. v. Q. Todd Dickinson*, May 22, 2000 Tr. at 7 (Previously filed Tab 54 at Tab A)]

[E]xaminers are under tremendous pressure to produce work, and if they're going to approve [an application], they just approve it and kind of let it out the door. [May 22, 2000 Tr. at 48 (Previously filed Tab 54 at Tab A)]

As Dr. Brewer pointed out in his letter to Director Rogan, the PTO, in making these outrageous public statements, undercuts the statutory presumption of validity of every U.S. patent it has ever issued over the past 50 years:

### **Presumption of validity; defenses**

A patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim. The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.

Underlying this statutory presumption is the premise of administrative regularity, which presumes that well-trained examiners with expertise in their respective fields properly carry out their examination duties by issuing only valid patents. See, e.g., American Hoist & Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1359 (Fed. Cir. 1984). This presumption was, in fact, confirmed by the capable work of Examiners Langel and Kalafut, who with over 50 years of experience between them, examined and allowed Applicant's '935 patent, along with BlackLight's withdrawn applications.<sup>14</sup>

As succinctly stated in Dr. Brewer's letter, Solicitor Baer's statements on behalf of the PTO should be alarming to just about everyone, with the possible exception of accused patent infringers, and most certainly do not reflect well on an agency charged with maintaining the integrity of the patent system. Applicant felt that a meeting with Director Rogan to secure a retraction of those statements would be mutually beneficial to both sides. Yet, once again, inexplicably, the PTO is not prepared to discuss this issue at the present time.

These and other unfair assaults on Applicant's patent rights leave him to ponder: What would motivate the PTO to conduct itself with such total disregard for U.S. patent laws and regulations governing its administrative authority just to attack this one Applicant?

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<sup>14</sup> The Examiners initially rejected all claims in these cases, but after conducting five lengthy personal interviews with Applicant and carefully considering Applicant's experimental evidence, they ultimately allowed those claims.

Applicant's fear is that these attacks may be attributed to competitors, like Dr. Park, who are coordinating an organized smear campaign to discredit BlackLight's technology. That fear is only heightened by the PTO's hiding behind strained theoretical arguments as an excuse for refusing to fairly evaluate Applicant's experimental evidence, while using its Secret Committee to issue anonymous rejections in this and BlackLight's other pending cases. Dr. Brewer also brought these issues to Director Rogan's attention as an agenda item for a meeting that, unfortunately, never took place.

Applicant has a right to know the identity and qualifications of all persons providing input to, or otherwise participating in, the examination process. This information bears directly on the credibility of the rejections that have entered in this and other BlackLight applications. For instance, if Dr. Park or any of his physicist cronies have been consulted in denying Applicant his patent rights, it would certainly explain the arbitrary and capricious handling of the experimental evidence of record in those cases.

Furthermore, knowing the persons responsible for deciding the fate of these applications so they can be addressed directly would also greatly assist Applicant in more effectively responding to and overcoming the rejections of record. Applicant has been stymied on numerous occasions in attempts to discover the basis for various positions articulated by the Secret Committee, or the status of certain actions it has taken. Seldom are the Examiners of record, who are mere signatories to the Secret Committee's handiwork, or their immediate supervisors, able to give any useful guidance on those subjects, either because they have no authority to do so and cannot divulge who does, or, in some cases, they do not know who even has custody of the patent file so as to investigate the answer to a particular question.

Applicant is hardly surprised by his inability to break the PTO's code of silence on the suspicious handling of BlackLight's applications given that the PTO has stonewalled similar inquiries from five U.S. Senators—four of whom requested that Senator Patrick Leahy, Chairman of the Judiciary Committee overseeing the PTO, and/or Commerce

Secretary Donald Evans, look into this matter. [See letters to and from Senators Max Cleland, Robert Torricelli, Jon Corzine, Ron Wyden, and Gordon Smith (Previously filed Tabs 64 and 65)]

If the PTO looks to the Federal Circuit's June 28 Decision for license to continue its hostile prosecution through secret examination, it will not find it. Indeed, Judge Newman, in rationalizing her ruling, incorrectly assumed that the PTO would fairly prosecute BlackLight's applications:

Such action must of course be reasonable under the circumstances and rare in occurrence, lest the emergency become the rule. But when necessary in order to fulfill the PTO's mission, with safeguards to the interests of the applicant including fair and expeditious further examination, we agree with the district court that the action taken is a permissible implementation of the statute and regulation. [See *BlackLight Power* at pages 7-8 (Attachment D) (emphasis added).]

Nothing could be further from the truth. As summarized above, the PTO's prosecution of BlackLight's applications has been nothing short of hostile and attempting to hide its actions behind the authority of a Secret Committee only exacerbates the unfairness of those actions.

If and when the PTO decides to break its silence and engage in an open and honest discussion of the issues plaguing BlackLight's applications, Applicant renews his earlier commitment, as expressed in Dr. Brewer's December 21, 2001 letter, to meet with Director Rogan and any other government officials, anywhere, anytime, to attempt to resolve these outstanding issues. Applicant sincerely hopes that the Director will likewise commit himself to achieving the same objective so that a fair and expeditious prosecution of BlackLight's applications that safeguards Applicant's interests, as envisioned by Judge Newman, can move forward with mutually beneficial results.

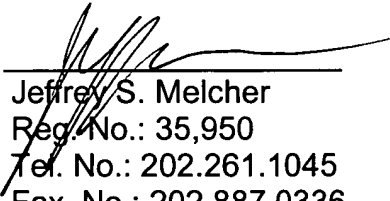
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Part of that movement forward should include proper consideration of the overwhelming experimental evidence confirming the utility and enablement of Applicant's claimed invention. In view of that evidence, Applicant submits that the rejections under 35 U.S.C. §§ 101 and 112 are misplaced and should be withdrawn, and that the present application is in condition for allowance.

Respectfully submitted,

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## **ATTACHMENT A**

### **LIST OF REFERENCES**

1. R. Mills, J. Sankar, P. Ray, B. Dhandapani, J. He, "Spectroscopic Characterization of the Atomic Hydrogen Energies and Densities and Carbon Species During Helium-Hydrogen-Methane Plasma CVD Synthesis of Single Crystal Diamond Films", Chemistry of Materials, submitted.
2. R. Mills, P. Ray, R. M. Mayo, "Stationary Inverted Balmer and Lyman Populations for a CW HI Water-Plasma Laser", IEEE Transactions on Plasma Science, submitted.
3. R. L. Mills, P. Ray, B. Dhandapani, J. He, "New Energy States of Atomic Hydrogen Formed in a Catalytic Helium-Hydrogen Plasma", IEEE Transactions on Plasma Science, submitted.
4. R. Mills, P. Ray, R. M. Mayo, "Water-Plasma Medium for a Hydrogen Laser", J of Phys. Chem. Lett., submitted.
5. R. Mills, P. Ray, R. M. Mayo, "The Potential for an Extremely Versatile Hydrogen Water-Plasma Laser", Phys. Rev. E, submitted.
6. R. L. Mills, B. Dhandapani, J. He, J. Sankar, "CVD Synthesis of Single Crystal Diamond Films on Silicon Substrates Without Seeding", Diamond and Related Materials, submitted.
7. R. L. Mills, X. Chen, P. Ray, J. He, B. Dhandapani, "Plasma Power Source Based on a Catalytic Reaction of Atomic Hydrogen Measured by Water Bath Calorimetry", Thermochemica Acta, submitted.
8. R. L. Mills, A. Voigt, B. Dhandapani, J. He, "Synthesis and Spectroscopic Identification of Lithium Chloro Hydride", Materials Characterization, submitted.
9. R. L. Mills, B. Dhandapani, J. He, "Highly Stable Amorphous Silicon Hydride", J of Materials Research, submitted.

10. R. L. Mills, B. Dhandapani, J. He, J. Sankar, "Synthesis of Diamond Films from Solid Carbon", Diamond and Related Materials, submitted.
11. R. Mills, P. Ray, R. M. Mayo, "The Potential for a Hydrogen Water-Plasma Laser", Applied Physics Letters, submitted.
12. R. L. Mills, "Classical Quantum Mechanics", Physica Scripta, submitted.
13. R. L. Mills, P. Ray, "Spectroscopic Characterization of Stationary Inverted Lyman Populations and Free-Free and Bound-Free Emission of Lower-Energy State Hydride Ion Formed by a Catalytic Reaction of Atomic Hydrogen and Certain Group I Catalysts, Quantitative Spectroscopy and Radiative Transfer, submitted.
14. R. M. Mayo, R. Mills, "Direct Plasmadynamic Conversion of Plasma Thermal Power to Electricity for Microdistributed Power Applications", 40th Annual Power Sources Conference, Cherry Hill, NJ, June 10-13, (2002), in press.
15. R. Mills, P. Ray, R. M. Mayo, "Chemically-Generated Stationary Inverted Lyman Population for a CW HI Laser", J Vac. Sci. and Tech. A, submitted.
16. R. L. Mills, P. Ray, B. Dhandapani, J. Dong, S. Hicks, M. Nansteel, X. Chen, J. He, R. M. Mayo, "Plasma Power Source Based on a Catalytic Reaction of Atomic Hydrogen", Fuels and Energy, submitted.
17. R. L. Mills, P. Ray, "Stationary Inverted Lyman Population Formed from Incandescently Heated Hydrogen Gas with Certain Catalysts", J. Phys. Chem. Lett., submitted.
18. R. Mills, "A Maxwellian Approach to Quantum Mechanics Explains the Nature of Free Electrons in Superfluid Helium", Foundations of Science, submitted.
19. R. Mills and M. Nansteel, P. Ray, "Bright Hydrogen-Light Source due to a Resonant Energy Transfer with Strontium and Argon Ions", New Journal of Physics, submitted.
20. R. Mills, P. Ray, R. M. Mayo, "CW HI Laser Based on a Stationary Inverted Lyman Population Formed from Incandescently Heated Hydrogen Gas with Certain Group I Catalysts", IEEE Transactions on Plasma Science, submitted.

21. R. L. Mills, P. Ray, J. Dong, M. Nansteel, B. Dhandapani, J. He, "Vibrational Spectral Emission of Fractional-Principal-Quantum-Energy-Level Molecular Hydrogen", Vibrational Spectroscopy, submitted.
22. R. L. Mills, P. Ray, E. Dayalan, B. Dhandapani, J. He, "Comparison of Excessive Balmer  $\alpha$  Line Broadening of Inductively and Capacitively Coupled RF, Microwave, and Glow Discharge Hydrogen Plasmas with Certain Catalysts", IEEE Transactions on Plasma Science, submitted.
23. R. M. Mayo, R. Mills, M. Nansteel, "Direct Plasmadynamic Conversion of Plasma Thermal Power to Electricity", IEEE Transactions on Plasma Science, submitted.
24. H. Conrads, R. Mills, Th. Wrubel, "Emission in the Deep Vacuum Ultraviolet from an Incandescently Driven Plasma in a Potassium Carbonate Cell", Plasma Sources Science and Technology, submitted.
25. R. L. Mills, P. Ray, "Stationary Inverted Lyman Population and a Very Stable Novel Hydride Formed by a Catalytic Reaction of Atomic Hydrogen and Certain Catalysts", International Journal of Engineering Science, submitted.
26. R. L. Mills, B. Dhandapani, J. He, "Synthesis and Characterization of a Highly Stable Amorphous Silicon Hydride", Int. J. Hydrogen Energy, submitted.
27. R. L. Mills, A. Voigt, B. Dhandapani, J. He, "Synthesis and Characterization of Lithium Chloro Hydride", Int. J. Hydrogen Energy, submitted.
28. R. L. Mills, P. Ray, "Substantial Changes in the Characteristics of a Microwave Plasma Due to Combining Argon and Hydrogen", New Journal of Physics, [www.njp.org](http://www.njp.org), Vol. 4, (2002), pp. 22.1-22.17.
29. R. L. Mills, P. Ray, "A Comprehensive Study of Spectra of the Bound-Free Hyperfine Levels of Novel Hydride Ion  $H^-(1/2)$ , Hydrogen, Nitrogen, and Air", Int. J. Hydrogen Energy, in press.
30. R. L. Mills, E. Dayalan, "Novel Alkali and Alkaline Earth Hydrides for High Voltage and High Energy Density Batteries", Proceedings of the 17<sup>th</sup> Annual Battery

Conference on Applications and Advances, California State University, Long Beach, CA, (January 15-18, 2002), pp. 1-6.

31. R. M. Mayo, R. Mills, M. Nansteel, "On the Potential of Direct and MHD Conversion of Power from a Novel Plasma Source to Electricity for Microdistributed Power Applications", IEEE Transactions on Plasma Science, in press.
32. R. Mills, P. Ray, J. Dong, M. Nansteel, W. Good, P. Jansson, B. Dhandapani, J. He, "Excessive Balmer  $\alpha$  Line Broadening, Power Balance, and Novel Hydride Ion Product of Plasma Formed from Incandescently Heated Hydrogen Gas with Certain Catalysts", Industrial Engineering and Chemical Research, submitted.
33. R. Mills, E. Dayalan, P. Ray, B. Dhandapani, J. He, "Highly Stable Novel Inorganic Hydrides from Aqueous Electrolysis and Plasma Electrolysis", Electrochimica Acta, in press.
34. R. L. Mills, P. Ray, B. Dhandapani, J. He, "Comparison of Excessive Balmer  $\alpha$  Line Broadening of Glow Discharge and Microwave Hydrogen Plasmas with Certain Catalysts", J. of Applied Physics, submitted.
35. R. L. Mills, P. Ray, B. Dhandapani, J. He, "Spectroscopic Identification of Fractional Rydberg States of Atomic Hydrogen Formed by a Catalytic Helium-Hydrogen Plasma Reaction", Spectrochimica Acta B, submitted.
36. R. L. Mills, P. Ray, B. Dhandapani, M. Nansteel, X. Chen, J. He, "New Power Source from Fractional Rydberg States of Atomic Hydrogen", Plasma Physics Reports, submitted.
37. R. L. Mills, P. Ray, B. Dhandapani, M. Nansteel, X. Chen, J. He, "Spectroscopic Identification of Transitions of Fractional Rydberg States of Atomic Hydrogen", J. of Quantitative Spectroscopy and Radiative Transfer, in press.
38. R. L. Mills, P. Ray, B. Dhandapani, M. Nansteel, X. Chen, J. He, "New Power Source from Fractional Quantum Energy Levels of Atomic Hydrogen that Surpasses Internal Combustion", J Mol. Struct., in press.

39. R. L. Mills, P. Ray, "Spectroscopic Identification of a Novel Catalytic Reaction of Rubidium Ion with Atomic Hydrogen and the Hydride Ion Product", *Int. J. Hydrogen Energy*, Vol. 27, No. 9, (2002), pp. 927-935.
40. R. Mills, J. Dong, W. Good, P. Ray, J. He, B. Dhandapani, "Measurement of Energy Balances of Noble Gas-Hydrogen Discharge Plasmas Using Calvet Calorimetry", *Int. J. Hydrogen Energy*, Vol. 27, No. 9, (2002), pp. 967-978.
41. R. L. Mills, A. Voigt, P. Ray, M. Nansteel, B. Dhandapani, "Measurement of Hydrogen Balmer Line Broadening and Thermal Power Balances of Noble Gas-Hydrogen Discharge Plasmas", *Int. J. Hydrogen Energy*, Vol. 27, No. 6, (2002), pp. 671-685.
42. R. Mills, P. Ray, "Vibrational Spectral Emission of Fractional-Principal-Quantum-Energy-Level Hydrogen Molecular Ion", *Int. J. Hydrogen Energy*, Vol. 27, No. 5, (2002), pp. 533-564.
43. R. Mills, P. Ray, "Spectral Emission of Fractional Quantum Energy Levels of Atomic Hydrogen from a Helium-Hydrogen Plasma and the Implications for Dark Matter", *Int. J. Hydrogen Energy*, Vol. 27, No. 3, pp. 301-322.
44. R. Mills, P. Ray, "Spectroscopic Identification of a Novel Catalytic Reaction of Potassium and Atomic Hydrogen and the Hydride Ion Product", *Int. J. Hydrogen Energy*, Vol. 27, No. 2, (2002), pp. 183-192.
45. R. Mills, "BlackLight Power Technology-A New Clean Hydrogen Energy Source with the Potential for Direct Conversion to Electricity", *Proceedings of the National Hydrogen Association, 12th Annual U.S. Hydrogen Meeting and Exposition, Hydrogen: The Common Thread*, The Washington Hilton and Towers, Washington DC, (March 6-8, 2001), pp. 671-697.
46. R. Mills, W. Good, A. Voigt, Jinquan Dong, "Minimum Heat of Formation of Potassium Iodo Hydride", *Int. J. Hydrogen Energy*, Vol. 26, No. 11, (2001), pp. 1199-1208.

47. R. Mills, "Spectroscopic Identification of a Novel Catalytic Reaction of Atomic Hydrogen and the Hydride Ion Product", *Int. J. Hydrogen Energy*, Vol. 26, No. 10, (2001), pp. 1041-1058.
48. R. Mills, N. Greenig, S. Hicks, "Optically Measured Power Balances of Glow Discharges of Mixtures of Argon, Hydrogen, and Potassium, Rubidium, Cesium, or Strontium Vapor", *Int. J. Hydrogen Energy*, Vol. 27, No. 6, (2002), pp. 651-670.
49. R. Mills, "The Grand Unified Theory of Classical Quantum Mechanics", Global Foundation, Inc. *Orbis Scientiae* entitled *The Role of Attractive and Repulsive Gravitational Forces in Cosmic Acceleration of Particles The Origin of the Cosmic Gamma Ray Bursts*, (29th Conference on High Energy Physics and Cosmology Since 1964) Dr. Behram N. Kursunoglu, Chairman, December 14-17, 2000, Lago Mar Resort, Fort Lauderdale, FL, Kluwer Academic/Plenum Publishers, New York, pp. 243-258.
50. R. Mills, "The Grand Unified Theory of Classical Quantum Mechanics", *Int. J. Hydrogen Energy*, Vol. 27, No. 5, (2002), pp. 565-590.
51. R. Mills and M. Nansteel, P. Ray, "Argon-Hydrogen-Strontium Discharge Light Source", *IEEE Transactions on Plasma Science*, Vol. 30, No. 2.
52. R. Mills, B. Dhandapani, M. Nansteel, J. He, A. Voigt, "Identification of Compounds Containing Novel Hydride Ions by Nuclear Magnetic Resonance Spectroscopy", *Int. J. Hydrogen Energy*, Vol. 26, No. 9, (2001), pp. 965-979.
53. R. Mills, "BlackLight Power Technology-A New Clean Energy Source with the Potential for Direct Conversion to Electricity", Global Foundation International Conference on "Global Warming and Energy Policy", Dr. Behram N. Kursunoglu, Chairman, Fort Lauderdale, FL, November 26-28, 2000, Kluwer Academic/Plenum Publishers, New York, pp. 187-202.
54. R. Mills, "The Nature of Free Electrons in Superfluid Helium--a Test of Quantum Mechanics and a Basis to Review its Foundations and Make a Comparison to Classical Theory", *Int. J. Hydrogen Energy*, Vol. 26, No. 10, (2001), pp. 1059-1096.

55. R. Mills, M. Nansteel, and Y. Lu, "Excessively Bright Hydrogen-Strontium Plasma Light Source Due to Energy Resonance of Strontium with Hydrogen", J. of Plasma Physics, submitted.
56. R. Mills, J. Dong, Y. Lu, "Observation of Extreme Ultraviolet Hydrogen Emission from Incandescently Heated Hydrogen Gas with Certain Catalysts", Int. J. Hydrogen Energy, Vol. 25, (2000), pp. 919-943.
57. R. Mills, "Observation of Extreme Ultraviolet Emission from Hydrogen-KI Plasmas Produced by a Hollow Cathode Discharge", Int. J. Hydrogen Energy, Vol. 26, No. 6, (2001), pp. 579-592.
58. R. Mills, "Temporal Behavior of Light-Emission in the Visible Spectral Range from a Ti-K<sub>2</sub>CO<sub>3</sub>-H-Cell", Int. J. Hydrogen Energy, Vol. 26, No. 4, (2001), pp. 327-332.
59. R. Mills, T. Onuma, and Y. Lu, "Formation of a Hydrogen Plasma from an Incandescently Heated Hydrogen-Catalyst Gas Mixture with an Anomalous Afterglow Duration", Int. J. Hydrogen Energy, Vol. 26, No. 7, July, (2001), pp. 749-762.
60. R. Mills, M. Nansteel, and Y. Lu, "Observation of Extreme Ultraviolet Hydrogen Emission from Incandescently Heated Hydrogen Gas with Strontium that Produced an Anomalous Optically Measured Power Balance", Int. J. Hydrogen Energy, Vol. 26, No. 4, (2001), pp. 309-326.
61. R. Mills, B. Dhandapani, N. Greenig, J. He, "Synthesis and Characterization of Potassium Iodo Hydride", Int. J. of Hydrogen Energy, Vol. 25, Issue 12, December, (2000), pp. 1185-1203.
62. R. Mills, "Novel Inorganic Hydride", Int. J. of Hydrogen Energy, Vol. 25, (2000), pp. 669-683.
63. R. Mills, B. Dhandapani, M. Nansteel, J. He, T. Shannon, A. Echezuria, "Synthesis and Characterization of Novel Hydride Compounds", Int. J. of Hydrogen Energy, Vol. 26, No. 4, (2001), pp. 339-367.

64. R. Mills, "Highly Stable Novel Inorganic Hydrides", Journal of New Materials for Electrochemical Systems, in press.
65. R. Mills, "Novel Hydrogen Compounds from a Potassium Carbonate Electrolytic Cell", Fusion Technology, Vol. 37, No. 2, March, (2000), pp. 157-182.
66. R. Mills, "The Hydrogen Atom Revisited", Int. J. of Hydrogen Energy, Vol. 25, Issue 12, December, (2000), pp. 1171-1183.
67. Mills, R., Good, W., "Fractional Quantum Energy Levels of Hydrogen", Fusion Technology, Vol. 28, No. 4, November, (1995), pp. 1697-1719.
68. Mills, R., Good, W., Shaubach, R., "Dihydrino Molecule Identification", Fusion Technology, Vol. 25, 103 (1994).
69. R. Mills and S. Kneizys, Fusion Technol. Vol. 20, 65 (1991).
70. R. Mills, *The Grand Unified Theory of Classical Quantum Mechanics*, September 2001 Edition, BlackLight Power, Inc., Cranbury, New Jersey, Distributed by Amazon.com.